COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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May 12, 2014

TO: Each Supervisor

FROM: Gail Farber
Director of Public Works

BOARD MOTION OF APRIL 20, 2010, ITEM NO. 44
CONVERSION TECHNOLOGIES IN THE COUNTY OF LOS ANGELES
SIX-MONTH STATUS UPDATE: OCTOBER 2013 THROUGH APRIL 2014

On April 20, 2010, the Board approved Memoranda of Understanding for three conversion technology demonstration projects and awarded a contract for consultant services to assist Public Works in developing innovative alternatives to landfills within the County. Since that time, Public Works has provided the Board with a biannual update, highlighting program milestones and notable legislative and regulatory advancements. The attached update provides a summary for October 2013 through April 2014.

Program highlights since the last report in October 2013 include the following:

- In partnership with Senator Ricardo Lara and the California State Association of Counties, introduced biomass conversion legislation Senate Bill 498. The bill would add noncombustion thermal conversion technologies to the definition of biomass conversion, creating a clear permitting pathway for these technologies while providing incentives to divert biomass from landfill disposal. The bill has passed through the State Senate and is awaiting committee assignment in the State Assembly.

- Staff continued to monitor funding opportunities for conversion technologies from State and Federal sources. As part of this effort, we provided extensive feedback on legislative actions, regulatory changes,

and incentives being proposed by CalRecycle in Governor Brown's new budget.

- Completed updates to the Conversion Technology Online Vendor Database. The database now includes nearly 60 technology listings and is available to the public on the Department's SoCalConversion.org website. This Database was developed to assist Public Works in facilitating partnerships between conversion technology vendors and project developers and accelerate the development of commercial-scale conversion technology projects in the County.

- Developed a White Paper evaluating and comparing the environmental impacts of traditional landfilling with an integrated conversion technology facility. The purpose of this White Paper is to quantify the environmental benefits of conversion technologies in comparison to landfilling. This paper will be an important tool in educating decision makers regarding the benefits of conversion technologies. The analysis is ongoing and the paper will undergo peer review and release later this year.

- Continued providing technical and planning services and information to potential conversion technology projects located in the County, as summarized in the attached status update.

Public Works will continue to work with stakeholders to move forward with project development activities at sites within the County. Our next status report will be submitted to the Board in October 2014.

TM:dy
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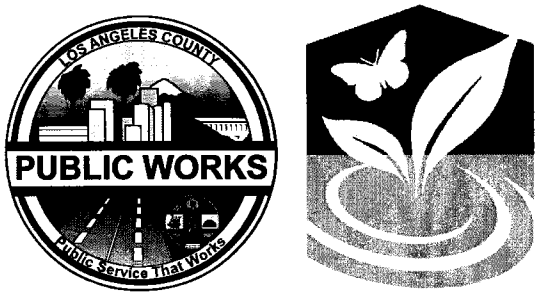
Attach.

cc: Chief Executive Office (Rita Robinson)
County Counsel
Executive Office
Department of Public Health
Department of Regional Planning
Los Angeles County Integrated Waste Management Task Force
Regional Planning Commission
Sanitation Districts of Los Angeles County

County of Los Angeles Department of Public Works

Conversion Technology Program Six-Month Status Update

October 2013 through April 2014



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1 Introduction

On April 20, 2010, the County of Los Angeles Board of Supervisors unanimously approved three Memoranda of Understanding to develop demonstration conversion technology projects as part of the Southern California Conversion Technology Program. The purpose of the program is to encourage the development of conversion technologies as alternatives to landfills for the management of residual solid waste in the County. The Board also awarded a contract for consultant services for the program's demonstration and commercial phases and approved a motion instructing the Director of the County of Los Angeles Department of Public Works, in coordination with appropriate stakeholders, to assess the feasibility of developing a conversion technology facility at one or more County landfills and to identify other potential facility sites within the County. The motion further directed Public Works to report to the Board in six months with its findings.

In October 2010, Public Works submitted a Preliminary Siting Assessment to the Board identifying potential project sites proposed by 11 municipalities and 9 private companies and committed to providing the Board with a status report on our efforts every six months. Since that time, Public Works has worked with interested stakeholders to evaluate additional possible project locations within the County.

Subsequently, on September 25, 2012, the Board approved a motion by Supervisor Don Knabe directing Public Works, in conjunction with the Chief Executive Office (CEO), to work with key stakeholders to pursue and support the passage of legislation and regulations to encourage development of conversion technologies, including appropriate incentives for producing renewable energy, reducing landfill disposal, and producing low-carbon fuels.

This report provides a summary of key actions and accomplishments by Public Works, in concert with the CEO and the County's legislative advocates in Sacramento, in response to the above Board actions, for the period of October 2013 to April 2014. Most significant among those actions and accomplishments is legislative activity centered around Senate Bill 498 (SB 498), cosponsored by the County and the California State Association of Counties (CSAC) and authored by Senator Ricardo Lara, as discussed in Section 3 below.

2 Project Background

For over a decade, Public Works has evaluated and promoted the development of conversion technology facilities as an alternative to landfilling of solid waste. In addition to diverting solid waste from landfill disposal, such facilities produce renewable energy (electricity, gaseous, or liquid fuels), reduce environmental impacts, and create local green-collar jobs. Together with technical and public outreach consultants, and the Alternative Technology Advisory Subcommittee of the Los Angeles

County Integrated Waste Management Task Force, Public Works has vetted various noncombustion thermal, biological, chemical, and mechanical conversion technologies, assessed potential project sites, worked with local and State agencies to create a permitting pathway for the technologies, and created a Countywide public outreach plan to educate stakeholders about the benefit of these technologies.

One of the most significant barriers to the development of conversion technologies in California has been inconsistent definitions and other provisions in State laws and regulations, which inhibit the development of conversion technologies. To address this issue, on September 25, 2012, the Board approved a motion directing Public Works, in conjunction with the CEO, to work with the County Sanitation Districts of Los Angeles County (CSD) and other key stakeholders to:

- Actively pursue and support the passage of State and Federal legislation and regulations that would establish a clear pathway to encourage the development of conversion technologies, including clarification of the definition of conversion technologies and ensuring they qualify for appropriate incentives for producing renewable energy, reducing landfill disposal, and producing low-carbon fuels.
- Support legislation to provide renewable energy status and to continue to provide diversion credits and other incentives for energy production at existing facilities in the County that generate energy from waste.
- Outreach to State agencies and other stakeholders to share information on the technical performance and multifaceted benefits of conversion technologies, such as their role in meeting the solid waste management needs of local jurisdictions, producing green fuels, and reducing greenhouse gas emissions.
- Work with conversion technology companies to identify potential regulatory changes that are necessary to streamline the permitting process to allow conversion technology facilities to flourish in California while complying with California's strict environmental standards.

3 Conversion Technology Legislation

During the 2013-14 California Legislative Session SB 498, relating to solid waste conversion technologies, was amended in the State Legislature. SB 498, authored by Senator Ricardo Lara, proposes to revise the definition of the term "biomass conversion" to include noncombustion conversion technologies.

3.1 Senate Bill 498 (SB 498)

Senate Bill 498, formerly a green chemistry bill, was revised by Senator Ricardo Lara as a second attempt at passing a conversion technology bill similar to Senate Bill 804 (SB 804), which was vetoed by Governor Brown in late 2013. Governor Brown indicated that while he agreed with the intent of the bill, he found some of the language to be unworkable. The language in SB 498 was developed by the County and the

CSAC following meetings with the California Department of Resources Recycling and Recovery (CalRecycle) and key Sacramento stakeholders, with Governor Brown's SB 804 veto message in mind.

Current law defines "biomass conversion" as the controlled combustion of organic materials, such as wood, lawn and garden clippings, agricultural waste, leaves, tree pruning, and nonrecyclable paper, when separated from other solid waste and used for producing electricity or heat. SB 498 adds "conversion technologies" to the definition of "biomass conversion," allowing for cleaner and more efficient noncombustion thermal technologies to be used to convert biomass into fuels and products in addition to heat and/or electricity.

This bill was supported by many stakeholders, including the City of Torrance, City of Vernon, County of Santa Barbara, County of Ventura, Rural County Representatives of California, Anaergia Services, and JFE Engineering America, Inc. As a result, SB 498 passed out of the Senate by a vote of 34 to 0 on January 28, 2014. The bill is currently awaiting committee assignment in the Assembly.

4 Public Outreach

Public Works, in consultation with the County's legislative advocates, has conducted legislative outreach to various public and private stakeholders seeking input on SB 498's language as well as requesting support for the bill as it moved through the State Legislature. Key outreach activities included drafting model support letters, sending out updates through the monthly conversion technology e-newsletter and conducting meetings with key stakeholders and the County's legislative advocates. To date this legislative outreach activity has been successful in helping the County's sponsored legislation to move forward.

5 Conversion Technology Online Vendor Database

Public Works completed updates to the Conversion Technology Online Vendor Database, which includes nearly 60 technology listings (see Table 1 on next page) and is available for public use at www.SoCalConversion.org. Future plans are to expand the database to include pre- and post-processing technologies (e.g., sorting/separation systems, waste-to-fuel technologies, fuel cells and other power generation equipment, gas clean-up equipment, and other systems relevant to a complete conversion technology facility). Public Works has received positive feedback from municipalities and companies alike regarding the value of this database in fostering potential development partnerships for conversion technology projects.

Table 1: Conversion Technology Vendor Database Listings

Abengoa Bioenergy	Interstate Waste Technologies, Inc.
AdaptiveARC Inc.	JFE Engineering Corporation
Alter NRG Corp. American Waste to Energy, LLC	Lystek International, Inc. MaxWest Environmental Systems, Inc.
Anaergia	Mustang Renewable Power Ventures, LLC
Arrow Ecology and Engineering Overseas, Ltd.	NRG Energy, Inc.
Axpo Kompogas AG	Organic Waste Systems
Bharco Ecotechnologies, LLC	Orgaworld International (West AD)
BIOFerm Energy Systems	Orgaworld International BV (Dry AD BIOCEL)
Biogas Energy, Inc.	Orgaworld International BV (MBT OMRIN)
BIOGAS Equity 2, Inc.	Plasco Energy Group
BioGold Fuels Corporation	PowerHouse Energy, LLC
CBES Global, LLC	Princeton Environmental Group
CCI Bioenergy Inc.	Pryogenesis
Clean World Partners	ReCycled Refuse (RCR) International, Ltd.
Covanta Energy Corporation	Renewable Energy Management, Inc.
CR&R Incorporated	Resource Energy Development, Inc.
EcoCorp	Ros Roca Envirotec
EcoTech Fuels, LLC	Sierra Energy
Eisenmann	Entec biogas USA
Energos and Urbaser	Taylor Biomass Energy, LLC
Envirepel Energy, Inc.	Technip USA, Inc.
Environmental Energy Resources Ltd.	Terrabon and Waste Management of California
Envision Waste Services, LLC	Urbaser
Harvest Power, Inc.	Waste to Energy, LLC
Himark Biogas, Inc. INEOS Bio USA, LLC	WSI to Energy, LLC
Innovative Energy Solutions, Inc.	Zero Waste Energy
International Environment Solutions (IES)	

6 Grant Opportunities

Public Works continually researches State and Federal grant opportunities to support and advance the County's Conversion Technology Program. Grants would offset facility development and/or operational costs, provide additional resources, and potentially spur project development in the region.

On January 9, 2014, the Governor's draft budget was released indicating how $850 million in cap-and-trade revenues would be spent. CalRecycle has received 3.5 percent of that allotment to implement the 2014-15 Proposed CalRecycle Greenhouse Gas Reduction Grant & Loan Programs. These programs will provide $30 million in financial incentives for capital investments that expand the waste management infrastructure in order to reduce greenhouse gas emissions.

Under the proposed budget, CalRecycle would administer competitive grants and loans to promote infrastructure development for facilities in California that divert more materials from landfills, thereby achieving greenhouse gas emissions reductions. Grants and loans would be targeted to build or expand organics infrastructure, such as composting and anaerobic digestion or reduce food waste in California. This program targets other activities, including new or expanded infrastructure for manufacturing products with recycled content fiber, plastic, or glass.

Public Works provided the following comments to CalRecycle regarding the proposed budget:

- Consider projects earlier in the development process. The proposal currently limits applications to "shovel-ready" projects that are already permitted and have completed their California Environmental Quality Act process, which appears to favor projects that were already planned to be built, rather than those that need grant funding in order to get off the ground.
- The organics solicitation is exclusively limited to anaerobic digestion and composting. Although anaerobic digestion is at present more widely used than other processes to convert organic waste to energy, biomass gasification and other conversion technologies may provide equal or greater greenhouse gas emissions reductions, which must be the primary emphasis of this program. Public Works encourages grant criteria to be technology neutral.
- Most of the anaerobic digestion developments take place in Northern California cities. To ensure a fair geographic allocation of grant funds, there needs to be an equitable distribution of funds throughout California. A competitive grant process without regional consideration may continue to support this cluster growth in the State.

- It is important for the grants and loans program to retain funding that supports local remanufacturing. Public Works supports remanufacturing and market development for recycled materials/end-products in California, given that only 2 million tons of recyclables are remanufactured in-State and 22 million tons are exported for remanufacturing.

7 Update on Project Development

Public Works continues to monitor project development in the Southern California region. Below is a summary of select projects that made significant progress during the October 2013 through April 2014 period:

7.1 Perris Materials Recovery Facility, CR&R Incorporated

CR&R Waste and Recycling Services, a local solid waste management company, is developing the 150 ton per day anaerobic digestion project at their Perris Materials Recovery Facility and Transfer Station. The project's digester supplier, Eisenmann and Greenlane, is providing their gas upgrade.

Public Works actively assisted CR&R in pursuing funding for the facility. In March 2014, Public Works sent a letter of support to the California Energy Commission on behalf of CR&R requesting supplemental grant funding for the project. In January 2011, the company received $4.5 million through the Assembly Bill 118 alternative fuel vehicle program. The project has also been successful in obtaining two additional grants from the California Energy Commission and South Coast Air Quality Management District to pay for a portion of the renewable natural gas fueling station that will be located onsite for fueling the company's hauling fleet.

On February 25, 2014, the Costa Mesa Sanitary District Board of Directors approved a six-year "evergreen" contract (i.e., automatically renewed at the end of that period) with CR&R. Green waste and food waste from Costa Mesa residents will be sent to the facility once it is complete. The City's organics program is estimated to cost about $500,000 a year. While customer rates have not been determined, district officials have approximately a $4 million reserve fund to pay for the program initially and may choose to implement small and gradual rate hikes to cover the costs.

7.2 Joint Water Pollution Control Plant, County Sanitation District/Waste Management

Located in the City of Carson, the Joint Water Pollution Control Plant is owned and operated by CSD. This location was proposed by the City of Carson as a potential location for a conversion technology facility in 2010 when Public Works issued an invitation to site owners and operators to participate in the County's program. Since that time, CSD and Waste Management have partnered to roll out a food waste digestion project at the site. The project began as a pilot project utilizing CSD's existing

wastewater treatment digesters and 84 tons per day (tpd) of preconsumer food waste supplied by Waste Management. Following a 2- to 3-year demonstration period, CSD and Waste Management will determine if a continued partnership will be pursued.

7.3 Pebbly Beach Landfill, City of Avalon

The City of Avalon has yet to make a decision regarding the development of a Request for Proposal for a small conversion technology facility at the Pebbly Beach Landfill on the Island of Catalina. Public Works remains interested and available to assist Avalon in securing necessary grant funding for a project or conducting additional feasibility assessments, depending on the City's goals and objectives.

7.4 Lancaster Landfill, Waste Management, Inc.

Condition 101 of Conditional Use Permit 03-170 (5) for the Waste Management owned Lancaster Landfill provides for the development of a conversion technology facility by Waste Management at the Lancaster Landfill.

On July 10, 2013, Waste Management issued an Invitation-Only Request for Proposals for a green waste and food waste processing facility on designated land within the boundaries of Waste Management's Lancaster Landfill located in the unincorporated region of the County near the City of Lancaster. Waste Management has yet to make a decision on this project.

7.5 South Gate MRF, Interior Removal Specialists (IRS Demo)

Over the past six months, Public Works has met with IRS Demo to identify grant funding to assist in the development of a small-scale thermal conversion technology unit at their construction and demolition recycling facility in South Gate. Public Works has coordinated initial discussions between IRS Demo and several technology vendors listed in the Conversion Technology Online Vendor Database. IRS Demo is currently continuing to evaluate their options and objectives for a project before applying for grant funding.

7.6 Grand Central Recycling and Transfer Station, Valley Vista Services

Grand Central Recycling and Transfer Station is located in the City of Industry and is owned by Valley Vista Services, a solid waste hauler in the County of Los Angeles. Over the past year, Valley Vista Services has continued to optimize their 600 tpd mixed waste Material Recovery Facility for organic feedstock preparation. Onsite Power is the licensee of the UC Davis anaerobic digestion process and has proposed to build a conversion technology project on approximately four acres available at the site. The

current focus is on developing a new green waste chipping, grinding, and composting operation. This new facility can provide both feedstock for the proposed anaerobic digestion system and also receive and compost the digestate that comes out of the anaerobic digestion process. The anaerobic digestion portion of the project is still in their future plans but will not be in immediate development.

7.7 Paramount Resource Recycling and Recovery Facility, Calmet Services

Calmet Services, a solid waste hauler in the County of Los Angeles, is currently focused on the permitting and development of the Royal Recycling and Transfer Station facility located in Paramount, California. However, they continue to evaluate the feasibility of anaerobic digestion at their existing Paramount Resource Recycling Facility (Paramount Facility). Royal Recycling and the Paramount Facility are located adjacent to each other and the successful development of the former will provide space within the Paramount Facility campus for the future anaerobic digestion plant. Development of such a project is still likely a few years away while the site continues to make smaller upgrades to comply with new regulations, including making stormwater management improvements. Additionally, Calmet Services would be open to potentially partnering with one of the preferred technologies from the Conversion Technology Online Vendor Database in the future.

7.8 Gardena Material Recovery Facility/Transfer Station, Waste Recovery & Recycling

Waste Resources Inc., a solid waste hauler in the County of Los Angeles, is in the process of obtaining permits that would enable them to demonstrate an autoclave, a mechanical conversion technology system, at their existing Material Recovery Facility and Transfer Station in an unincorporated area near Gardena. Installation of the autoclave is expected by August 2014. It is anticipated that the facility will be operational for demonstrations and permitting purposes by September 2014. Autoclave technology uses high-temperature steam to sterilize and break down the waste, which allows for the separation of clean recyclables and leaves behind the organic fraction of the waste that can be used for anaerobic digestion. The site has the advantage of being co-located with an existing material recovery facility and transfer station facility and can thus make use of the existing infrastructure and processing capability. Once the autoclave is installed and operational, the company will assess the performance and the resultant organic product stream for use in a future back-end conversion technology project.

7.9 City Terrace Material Recovery Facility, Southland Disposal

Southland Disposal is currently in the process of obtaining a Conditional Use Permit for the City Terrace Material Recovery Facility and Transfer Station to increase the amount

of material received from 700 to 1,500 tpd. When the application was initially submitted in January 2012, the project description contained a small anaerobic digestion facility (15-20 tpd). However, this component of the project has been put on hold due to space limitations as well as the complexity of the permitting effort. A revised project description was submitted in September 2012. Once they have accomplished their primary goal of material recovery facility expansion, it is expected that they will reconsider the conversion technology component at the City Terrace Material Recovery Facility.

7.10 Lopez Canyon, Mustang Power

Mustang Power, a conversion technology development company and the selected vendor in Santa Barbara County, has proposed a 36-acre site that it owns for a project. The site is available and is located near the Lopez Canyon Landfill in Unincorporated Los Angeles County. The site is currently being used for storage and as a trailer park. Project planning and development activities could begin in the near term. However, the identification of waste commitments is needed for a project at this location. Mustang Power is meeting with County staff to continue discussions regarding a number of potential opportunities. Mustang Power indicated that they have the time, capacity, and interest to develop a project in Los Angeles County. Additionally, they have been working on other opportunities outside the State, in the Northeast and Canada.

7.11 Green City Development

Green City Development, Inc., (Green City) has previously proposed two sites for the development of a project. One site is in the City of Santa Clarita and one is in Lopez Canyon. Green City is still very interested in developing a project at one of these sites, but does not currently have a technology vendor. The Conversion Technology Online Vendor Database on the County's website was discussed as a means of helping to identify a vendor that may be a good match for the site.

The Santa Clarita property is a former oil drilling site that occupies a total of 115-acres. This brownfield site is accessible from the I-210, SR-14, and I-5 freeways and is not within close proximity to residential neighborhoods. The property owner had been discussing potential project options with a technology vendor for the site. However, the vendor's financing has fallen through and the site is still available.

The second site is a 40-acre parcel of land in Lopez Canyon. Green City's primary concern with this site is the current zoning. The site is zoned A-2, Heavy Agriculture, so a Conditional Use Permit and possibly a zone variance would be required to develop a material recovery facility and conversion technology project on the property. Green City is interested in having the site rezoned as M-2 to facilitate a project.

7.12 Pacific Coast Waste & Recycling

Pacific Coast Waste & Recycling partnered with Organic Energy Corporation to form Ecolution. Ecolution was proposing a two-phase, 4,000 ton per day material recovery facility and conversion technology facility in the City of Lancaster. According to Mr. Tim Fuller, the president of Ecolution, the material recovery facility is not ready to move forward. The company came to this conclusion since it was unable to obtain sufficient waste supply agreements to make it profitable. Ecolution is currently focused on developing a project in Texas. The Lancaster project has been removed from the list of potential conversion technology projects.

8 Integrated Conversion Technology Facility White Paper

Public Works is developing a White Paper designed to provide policy makers with information regarding the relative impact of managing residual solid waste via traditional landfill disposal compared to an integrated conversion technology facility. The White Paper includes a high-level analysis of the greenhouse gas and other environmental impacts relating to the transport of waste for landfill disposal, in comparison to managing the residual solid waste onsite using anaerobic digestion and gasification. The preliminary results show that there are significant net environmental benefits to managing waste through an integrated conversion technology facility approach. The White Paper will undergo peer review and Public Works hopes to release it later this year.

9 Next Steps

Over the next six months, in concert with the County's legislative advocates and other stakeholders, Public Works will actively engage on multiple fronts to implement the Board's directives to advance conversion technology legislation in the State and create a clear pathway for their development. Among these efforts, Public Works will:

- Continue to participate in the stakeholder process for Statewide solid waste plans currently being developed by CalRecycle and the California Air Resources Board.
- As appropriate, work with the County's legislative advocates to support SB 498 and other legislation that would promote continued opportunities and resources for the development of conversion technologies in California.
- Continue to research potential State and Federal grant opportunities that support the development of conversion technologies.
- Conduct planning efforts as appropriate for the County-based projects as well as monitor the CR&R project.
- Expand the online databases to include pre- and post-processing technologies.

- Finalize/publicize the Integrated Conversion Technology Facility White Paper.
- Continue to work with stakeholders interested in developing projects in the County.
- Release the Request for Proposal for conversion technology technical services contract. The current 4-year contract with Alternative Resource Inc., will sunset on May 13, 2014.